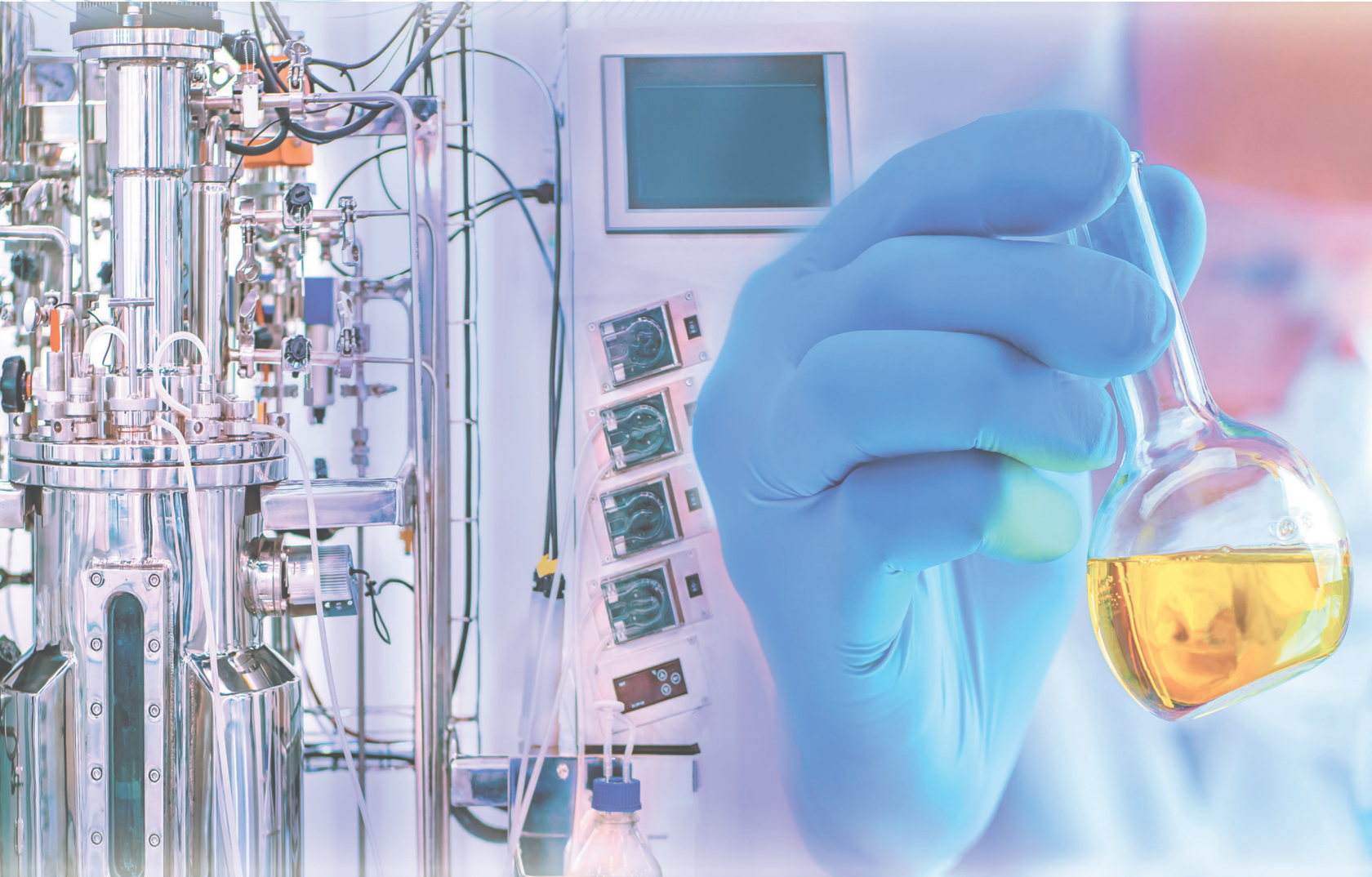
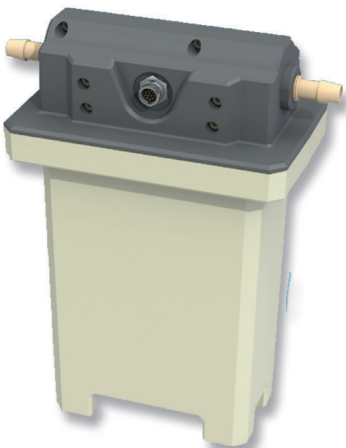




MALEMA



SINGLE USE APPLICATIONS PRODUCT BROCHURE



SINGLE USE FLOW METER

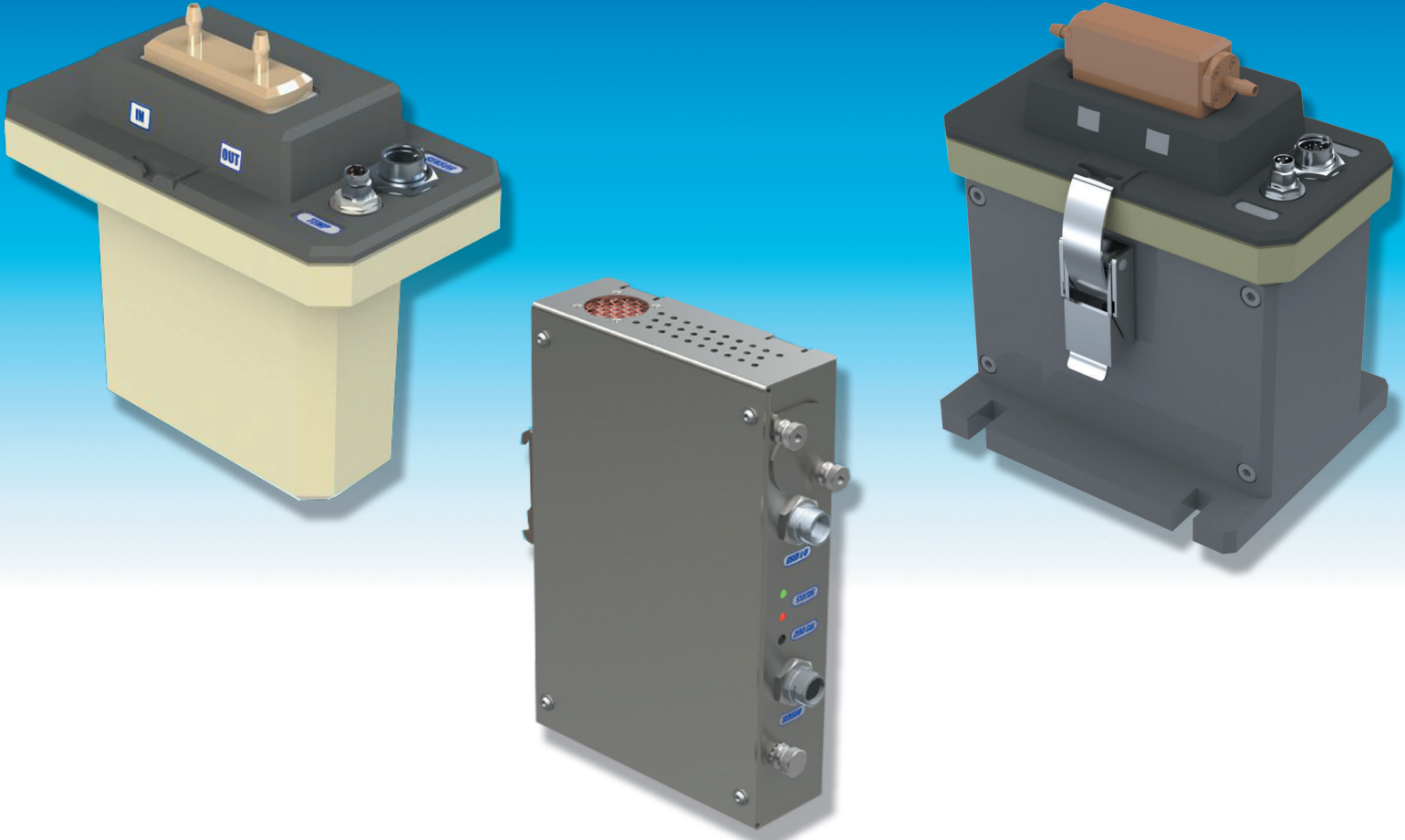


BIOPHARMA CONTROL VALVE



PULSATION DAMPENER

SUMOFLO® ULF SINGLE USE FLOW METER



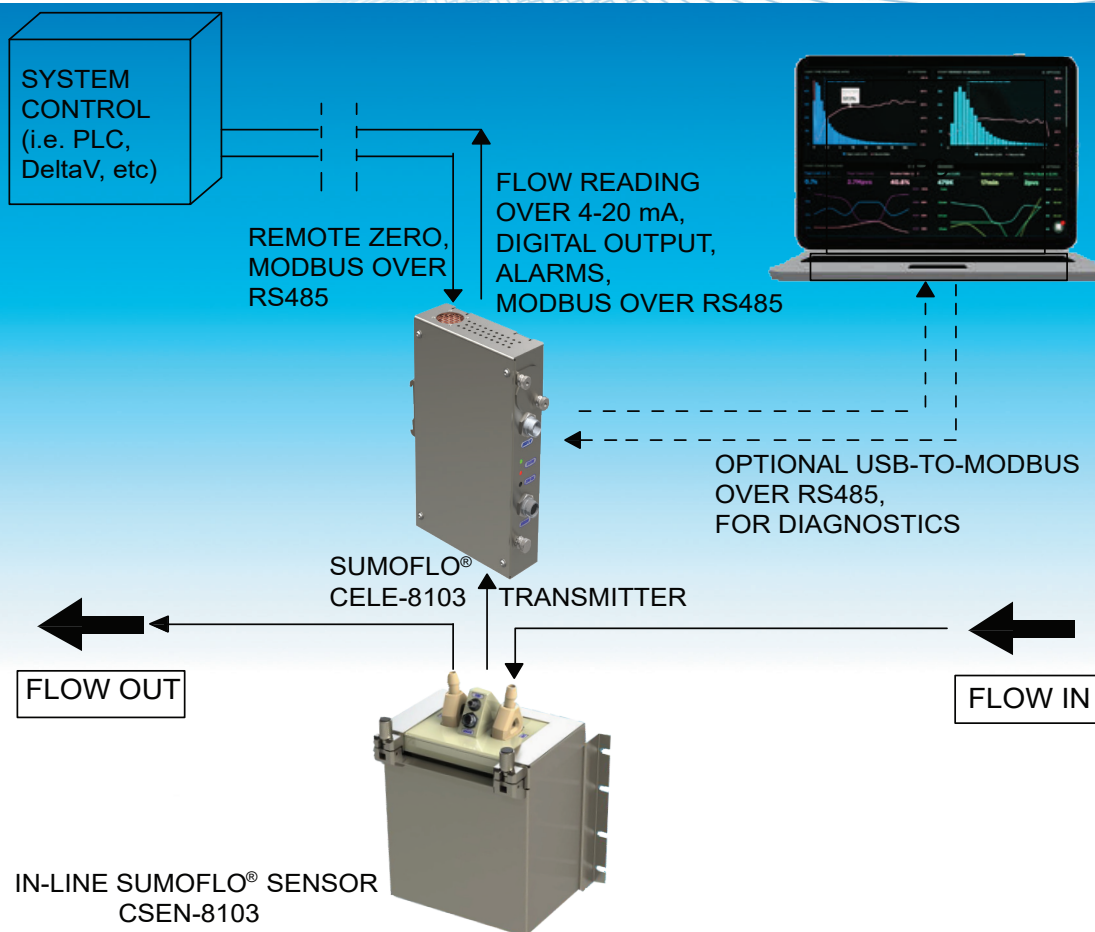
The ULF SumoFlo® Series Single Use Coriolis Flow Meter

The ULF Ultra Low Flow SumoFlo® CPFM-8103 series Single-Use Coriolis Flow Meter provides Mass Flow Rate as low as 0.5 g/min accurate to $\pm 1\%$ of reading

FEATURES

- Fluid measurement performance is independent of fluid properties thus eliminating the need to calibrate on different fluids
- Accuracy is unaffected by flow regime (e.g., laminar or turbulent flow) or variations in flow velocity profile
- 1/8" barb connections
- Configured as an in-line flow meter
- Supports fluid flow ranges from 0.5 g/min to 50 g/min
- Disposable drop-in sensor option for single use applications
- CE Marking certified version available
- Custom sensor mounting cradle available
- WFI Compatible

SUMOFLO® TYPICAL BLOCK DIAGRAM



Measurement Specifications

SumoFlo® CPM-8103

Accuracy

±2% of rate for 0.5 – 2 g/min
 ±1% of rate for 2 – 50 g/min

Temperature

Ambient: 0° – 50°C
 Fluid: 2° – 40°C

Operating Pressure

30 psig (max.) (80 psig max upon request)

Flow Range

0.5 – 50 g/min

Note: Pressure drop at max. flow range = 10 psi in water (1 cP)

Material Specifications

Process Connections*

1/8" barb connection

Wetted Materials

Unreinforced PEEK (Polyether ether ketone), Adhesive compliant with ISO 10993, 316L stainless steel. All polymeric wetted materials are USP Class VI, USP 661.2 and USP 788 compliant

Interconnecting Cable Length

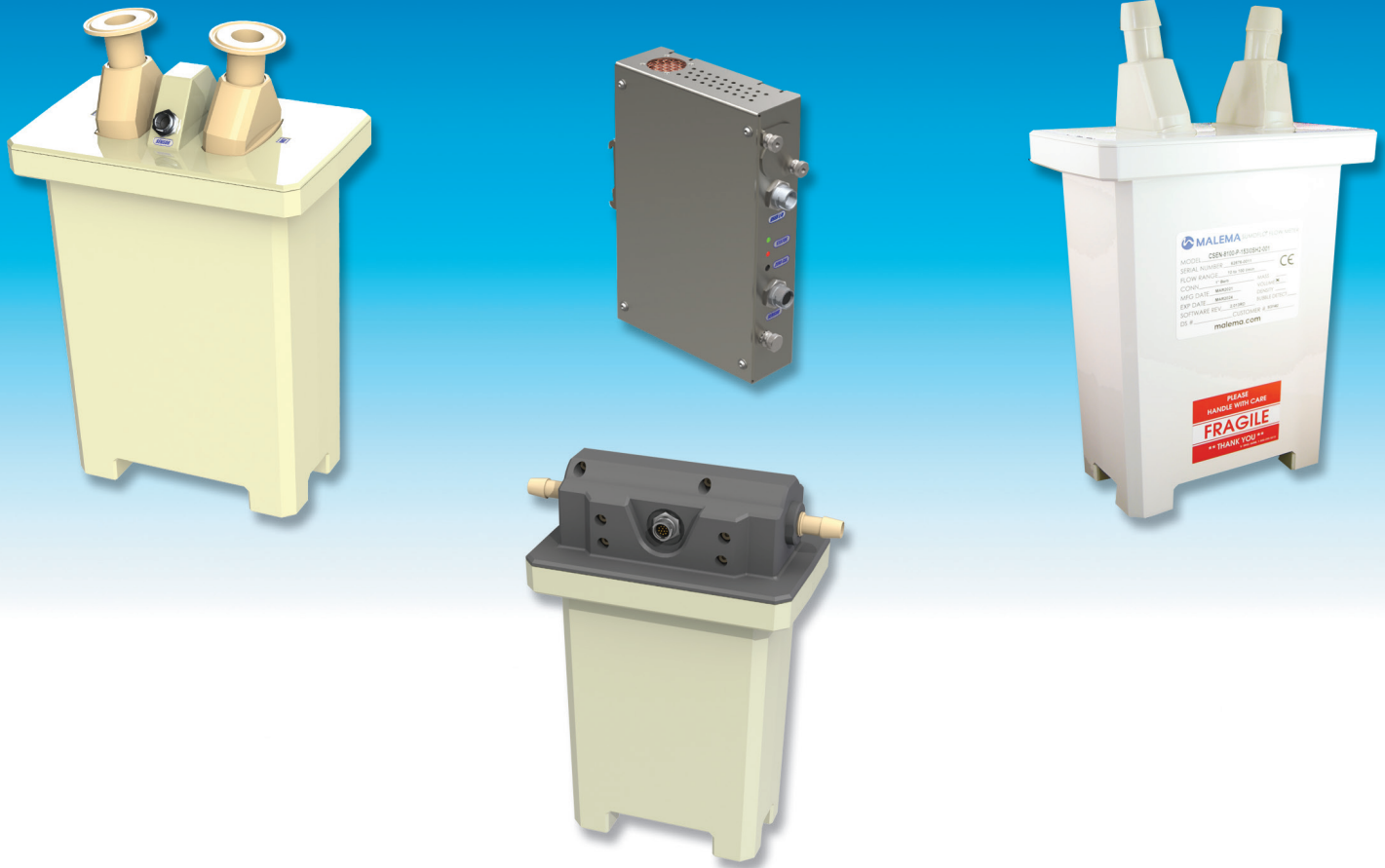
Standard 3 meter cables
 for other lengths, please consult factory

Ingress Rating For Connectors

IP65

*Consult the factory for other types of process connection options

SUMOFLO® SINGLE-USE CORIOLIS FLOW METER



SUMOFLO® CPFM-8103

The SumoFlo® CPFM-8103 in-line Single-Use Coriolis Flow Meter from Malema Sensors® provides Mass Flow Rate, Density, Volumetric Flow Rate, and Temperature, accurate up to $\pm 1\%$ of reading

FEATURES

- Fluid measurement performance is independent of fluid properties thus eliminating the need to calibrate on different fluids
- Accuracy is unaffected by flow regime (e.g., laminar or turbulent flow) or variations in flow velocity profile
- Multiple sensor sizes from 1/8" to 1"; available with barb or tri-clamp connections
- Supports fluid flow ranges from 0.0005 kg/min to 100 kg/min.
- Disposable drop-in sensor option for single use applications
- CE Marking certified version available
- Custom sensor mounting cradle available
- WFI Compatible

SPECIFICATIONS

Sensor Style

Sensor Style	Description	Electrical Connections	Fluid Connections
C	Cradle-Mount Sensor	Top (same side as fluid connections)	6° from vertical
P	Panel-Mount Sensor	Bottom (opposite side of fluid connections)	6° from vertical
R	Standard Inline Sensor	Either top or bottom	Inline (90° from vertical)
T	Tall Inline Sensor for chromatograph applications	Either top or bottom	Inline (90° from vertical)

Measurement Specifications

Model CSEN-8103-**	031	062	063	082	152	153
Accuracy	±1% of rate for 5% to 100% of full scale rated flow rate ±(1% of rate + Z.O.S) for < 5% of full scale rated flow rate					
Temperature	Ambient: 0°– 50°C Fluid: 2°– 40°C					
Operating Pressure	30 psig (207 kPa gauge) max.	80 psig (550 kPa gauge) max.				
Flow Range*	0.5 – 1.5 kg/min	0.5 – 5 kg/min	0.9 – 9 kg/min	2 – 20 kg/min	6 – 60 kg/min	10 – 100 kg/min
Zero Offset Stability (Z.O.S)**	0.25 g/min	2 g/min	2.5 g/min	2.5 g/min	10 g/min	10 g/min

* Lower minimum flow rates available with special calibration fee. Consult Malema for more information.

** Zero Offset Stability (Z.O.S.) Values apply only when using Heavy Cradles.

Material Specifications

Model CSEN-8103-**	031	062	063	082	152	153
Process Connections*	1/8" barb	1/4" barb	3/8" barb 3/8" Mini TC	1/2" barb 1/2" Mini TC	3/4" barb 3/4" Mini TC	1" barb 1"-1.5" TC
Wetted Materials	Unreinforced PEEK (Polyether ether ketone), 316L Stainless Steel (for temperature sensor only), Silicone. All polymeric wetted materials are USP Class VI compliant.					
Interconnecting Cable Length	Standard 3 m; For other lengths please consult the factory.					
Ingress Rating For Connectors	IP65					

*Consult the factory for other types of process connection options.

Electrical Specifications

Supply Voltage	24 V DC ±10%
Power Consumption	Max 6 W
Programming	Operator parameter configuration through configuration port with a PC
Analog Output Module	1x 4–20 mA, 2x 4–20 mA, or 4x 4–20 mA
Digital Input/Output Module	0x D/O, 1x D/O, or 2x D/O: Configurable as frequency or Digital I/O
Frequency Output	0 to 10 kHz proportional to flow rate
Digital Output over MODBUS *	Mass Flow Rate, Volumetric Flow Rate**, Density**, Temperature ***

* Requires CELE-8103 model configured for MODBUS communications.

** Requires CELE-8103 and CSEN-8103 models configured for density measurement.

*** Requires CELE-8103 and CSEN-8103 models configured for temperature compensation.

BIOPHARMA CONTROL VALVE



BCV-980 BIOPHARMA CONTROL VALVE

The Malema Sensors® BCV-980 is a compact, high-performance, pinch control valve designed for use with Single-Use flexible tubing systems in the Biotechnology industry

FEATURES

- ¼ DIN (88 mm x 88 mm) size Panel mount for tubing sizes 1/8" through 1" ID
- Integrated solution – single enclosure for valve and control electronics
- Local LED status display
- Multiple 4–20 mA analog inputs and outputs
- Malema Addressable Sensor Network (ASN) communication over RS-485
- All electrical cabling is facilitated from the rear panel, resulting in easy installation
- Optional wash-down applications version available with all 316L Stainless Steel Enclosure
- Fine control and standard control options available

APPLICATIONS

- Bio-pharmaceutical manufacturing
- Media preparation
- Food and beverage processing
- Chromatography
- Liposome extrusion
- Ultra-pure water production
- Aseptic biochemical production
- Tangential Flow Filtration (TFF)

PULSATION DAMPENER

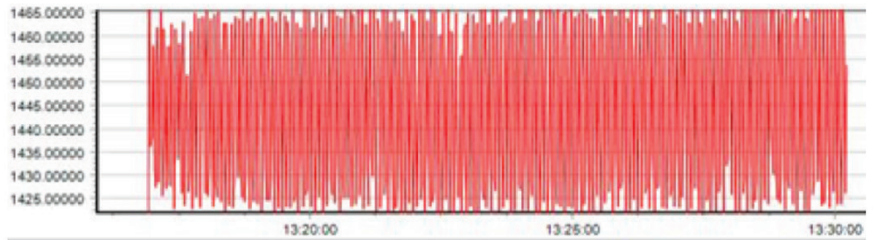


Figure 1. 1/4" ID fluid path with water, pumped using industry-standard diaphragm pump without dampener. The difference between min and max flow is approx. 40 g/min at 1445 g/min nominal flow rate

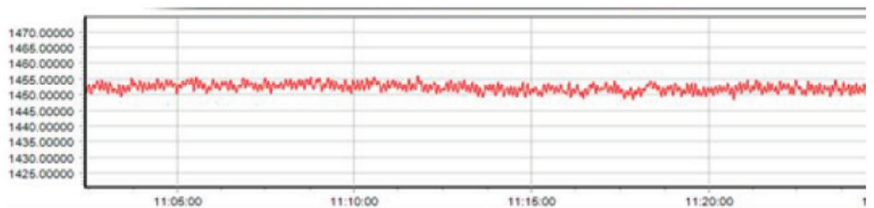


Figure 2. The same 1/4" ID fluid path with water, pumped the same industry-standard diaphragm pump with DMP-7000 installed between pump and flow meter. The difference between min and max flow is approx. 5 g/min at 1453 g/min nominal flow rate

DMP-7000 SINGLE-USE PULSATION DAMPENER

DMP-7000 pulsation dampener is designed for single-use applications in the life sciences industries. They are manufactured with all-plastic wetted surfaces that meet USP Class VI, USP 661.2, and USP 788 requirements

FEATURES

- Upto 95% reduction in peak to peak flow pulsation
- Wetted fluid path made of Polyurethane and PEEK that meets USP Class VI, USP 661.2, and USP 788 requirements
- Patent-pending single-use design eliminates pulsation of flow rate and line pressure
- Gamma-stable to 50 kGy
- Available for line sizes from 1/16" to 1" ID, and with hose barb or triclamp fluid connections
- Pressure rating to 90 psi (6 bar)

APPLICATIONS

- Filling and Fluid Transfer
- Chromatography
- Tangential Flow Filtration
- Depth Filtration

Malema endeavors to provide its customers with state-of-the-art flow and pressure measurement and closed-loop flow control products. We support these endeavors with a multi-faceted engineering team that specializes in providing custom solutions to meet customer requirements.

Our goal is to maintain lasting and satisfying customer relationships by delivering a quality product at a competitive price and lead-time.

In addition to Life Science products, Malema has a complete line of Industrial and Semiconductor products which can be viewed at ***www.malema.com***

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